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Please find below and/or attached an Office communication concerning this application or proceeding.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KHADER S. ABDEL-HAFEZ, LAUNG-TERNG WANG,
AUGUSLI KIFLI, FEI-SHENG HSU, XIAOQING WEN,
MENG-CHYI LIN, and HSIN-PO WANG

Appeal 2008-3826
Application 10/691,966
Technology Center 2100

Decided:¹ March 30, 2009

Before JAMES D. THOMAS, JOSEPH L. DIXON, and
ST. JOHN COURTENAY III, *Administrative Patent Judges*.

COURTENAY, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 CFR § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Data (electronic delivery).

STATEMENT OF THE CASE

This is a decision on appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 83-106. Claims 1-82 have been cancelled. We have jurisdiction under 35 U.S.C. § 6(b). We Affirm.

INVENTION

The invention on appeal is directed generally to the field of logic design and testing using design for-test (DFT) techniques. More particularly, Appellants' invention is directed to the field of testing asynchronous set/reset faults in integrated circuits by using scan test techniques. (Spec. 1).

ILLUSTRATIVE CLAIM

Claim 83 illustrates the invention:

83. A method for testing faults propagated to the data ports and asynchronous set/reset ports of selected scan cells in a scan-based integrated circuit in a selected scan-test mode or selected self-test mode using a global scan enable (global_SE) signal and one or more global set/reset enable (global_SR_EN) signals, the scan-based integrated circuit containing one or more set/reset circuitries each controlled by a set/reset controller, and one or more scan chains, each scan chain comprising multiple scan cells coupled in series, each scan cell having one or more clocks and each set/reset controller connected to said global scan enable (global_SE) signal and one said global set/reset enable (global_SR_EN) signal; said method comprising:

(a) shifting in a stimulus to all said scan cells in said scan-based integrated circuit by enabling said global scan enable (global_SE) signal through all said set/reset controllers to disable all said set/reset circuitries during a shift-in operation;

(b) capturing a test response of all said scan cells for testing said faults propagated to said data ports and said asynchronous set/reset ports of all said selected scan cells by enabling- or disabling selected global set/reset enable (global_SR_EN) signals while disabling said global scan enable (global_SE) signal during a capture operation;

(c) shifting out said test response for comparison or compaction while shifting in a new stimulus to all said scan cells during a shift-out operation.

PRIOR ART

The Examiner relies upon the following references as evidence in support of the obviousness rejection:

Ahanin	US 5,166,604	Nov. 24, 1992
Wang	US 2002/0120896 A1	Aug. 29, 2002

Abdel-Hafez, Appellants' Specification ("Background", pages 1-8, and Figs. 2A-E). (Hereinafter "AAPA").

Lattice Semiconductor, "ORCA Series 4 FPGAs", Data Sheet, January, 2003 (hereinafter "Lattice").

THE REJECTIONS

1. The Examiner states that “[t]he disclosure of the prior-filed provisional application, Application No. 60/422,117, failed to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application.” (Ans. 4, ¶2). We note that the Examiner particularly points to the only two independent claims on appeal (claims 83 and 96) as failing to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112. (*Id.*). Therefore, we will consider this statement by the Examiner as equivalent to applying a 35 U.S.C. §112, first paragraph rejection to all claims on appeal, for failing to comply with the written description and enablement requirements with respect to provisional application No. 60/422,117. Based on this purported lack of support and enablement, the Examiner has denied Appellants’ claim to domestic priority under 35 U.S.C. § 119(e).²

² See 37 C.F.R. § 1.78(a)(5)(i) “Any nonprovisional application or international application designating the United States of America claiming the benefit of one or more prior-filed provisional applications must contain or be amended to contain a reference to each such prior-filed provisional application, identifying it by the provisional application number (consisting of series code and serial number).” See also Spec. 1, ll. 7-9, “This application claims the benefit of U.S. Provisional Application No. 60/422,117 filed October 30, 2002, titled “Method and Apparatus for Testing Asynchronous Set/Reset Faults in a Scan-Based Integrated Circuit”, which is hereby incorporated by reference.”

2. Claims 83-106 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Ahanin, AAPA, Wang, and Lattice.

GROUPING OF CLAIMS

Appellants argue claims 83-106 as a group (*See* App. Br. 15). We will, therefore, treat claims 83-106 as standing or falling with representative claim 83.

We accept Appellants' grouping of the claims. *See* 37 C.F.R. § 41.37(c)(1)(vii) ("Notwithstanding any other provision of this paragraph, the failure of appellant to separately argue claims which appellant has grouped together shall constitute a waiver of any argument that the Board must consider the patentability of any grouped claim separately.").

Examiner's Refusal to Enter Amendment

At the outset, we note that the Examiner has not entered the amendment to the Specification submitted by Appellants on Dec. 12, 2005. (*See* Final Rejection mailed Feb. 16, 2006, page 2). Refusal to enter an amendment relates to a petitionable issue and not an appealable issue. The proper procedure under MPEP 1002.02(c)(3)(f) is to file a petition with the Technology Center Director under 37 C.F.R. § 1.127 ("From the refusal of the primary examiner to admit an amendment, in whole or in part, a petition

will lie to the Director under § 1.181"). Since the Examiner's refusal to enter the aforementioned amendment to the Specification is a petitionable, rather than appealable matter, this issue is not before us and we express no opinion as to its propriety.

35 U.S.C. § 112, 1st paragraph rejection

THE EXAMINER'S FINDINGS AND CONCLUSIONS

The Examiner makes the following statement in the Answer:

The disclosure of the prior-filed provisional application, Application No. 60/422,117, failed to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. The appellant's argument in the amendment after-non-final stated that the prior-filed application "implied" global set/reset and scan-enable. The examiner maintained in the final rejection of 02/16/2006 that the Disclosure, failed to refer to any "global" signals and had not named any signals as being "global", and therefore failed to teach global set/reset and global scan-enable as was claimed in the two independent claims of the subject application. Since there was no teaching of the signals, the examiner maintained the finding in the previous office action dated 9/13/2005, that domestic priority based on the prior provisional application is not granted.
(Ans. 4).

THE APPELLANTS' CONTENTIONS

Appellants contest the Examiner's denial of domestic priority (for lack of adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. § 112) with respect to provisional application Serial No. 60/422,177. (App. Br. 11). In particular, Appellants contend that support for the utility claims of the present application is found within provisional application Serial No. 60/422,117 on page 3, first paragraph, and

also on page 4 under the heading “summary.” (App. Br. 10-11). These pertinent portions of provisional application Serial No. 60/422,117 are reproduced on pages 10 and 11 of the Appeal Brief.

Appellants make the following appraisal of the pertinent portions of the provisional application: “While the word ‘global’ is not used, taken with the provisional drawings, these all imply that the scan-enable SE signals and the set/reset enable SR_EN signals are global in nature in that provisional application.” (App. Br. 11).

FINDINGS OF FACT

In our analysis *infra*, we rely on the following findings of fact (FF) that are supported by a preponderance of the evidence:

Provisional application Serial No. 60/422,117

1. Provisional application Serial No. 60/422,117 discloses: “[t]he present invention uses a scan enable (SE) and and/or gate to disable the asynchronous set/reset signals of all scan cells. A new set/reset enable (SR_EN) signal is introduced to propagate the faults of asynchronous set/reset signals in a dedicated capture cycle. In this dedicated capture cycle, the test clocks are disabled so that the race conditions that exist on prior-art #3 are eliminated. The present invention repairs the asynchronous set/reset violations either at the register transfer level (RTL) or the gate-level circuit.” (Page 3, ll. 6-11).
2. Provisional application Serial No. 60/422,117 discloses “[t]hree additional input signals, a scan enable signal SE a test enable signal TE and a set/reset enable (SR_EN) signal can be added to the RTL

codes for this purpose. The three enable signals, SE, TE, and SR_EN will be used to control the operation of added scan logic so that the circuit can function correctly during scan and normal operations. The following table summarizes the circuit operation mode under different SE, TE, and SR_EN values. The test clocks are disabled during the capture set/reset mode.” (Page 4; ll. 9-14 *see also* “Mode” table shown on page 4, ll. 15-16).

ISSUE

Have Appellants shown that the Examiner erred in determining that all claims on appeal fail to comply with the written description and enablement requirements under 35 U.S.C. §112, first paragraph, with respect to provisional Application No. 60/422,117?

PRINCIPLES OF LAW

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same
(35 U.S.C. § 112, first paragraph).

The “enablement requirement is satisfied when one skilled in the art, after reading the specification, could practice the claimed invention without undue experimentation.” *AK Steel Corp. v. Sollac*, 344 F.3d 1234, 1244 (Fed. Cir. 2003).

Regarding the written description requirement, “the applicant must . . . convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*.” *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991). As to the drawings as part of the Specification, “[t]he proper test is whether the drawings conveyed with reasonable clarity to those of ordinary skill that [the inventor] . . . invented . . . [the invention] . . . recited in those claims.” *Id.* at 1566. The determination of whether a patent meets the written description requirement is a “question of fact, judged from the perspective of one of ordinary skill in the art as of the relevant filing date.” *Falko-Gunter Falkner v. Inglis*, 448 F.3d 1357, 1363 (Fed. Cir. 2006) (citing *Vas-Cath*, 935 F.2d at 1563-64).

ANALYSIS

We decide the question whether Appellants have shown that the Examiner erred in determining that independent claims 83 and 96 (and all claims depending therefrom) fail to comply with the written description and enablement requirements under 35 U.S.C. §112, first paragraph, with respect to provisional application Serial No. 60/422,117, from which Appellants claim domestic priority.

The Examiner maintained in the final rejection of Feb. 16, 2006 that Appellants’ provisional application (Serial No. 60/422,117) failed to refer to any “global” signals and had not named any signals as being “global,” and therefore failed to teach global set/reset and global scan-enable as was claimed in the two independent claims (83 and 96) of the later-filed utility application. (*See* Final Rejection 3, ¶1; *see also* Ans. 4, ¶2).

§ 112, first paragraph, written description

After considering the record before us, we find Appellants' admission that the word "global" is not used in the prior-filed provisional application to weigh in favor of the Examiner's position. (See App. Br. 11). Moreover, Appellants state that the aforementioned pertinent portions of the provisional application (*see* FF 1-2) "*imply* that the scan-enable SE signals and the set/reset enable SR_EN signals are global in nature" (App. Br. 12, emphasis added). However, the question of written description support should not be confused with the question of what would have been obvious to the artisan. Whether one skilled in the art would find the instantly claimed invention obvious in view of the disclosure is not an issue in the "written description" inquiry. *In re Barker*, 559 F.2d 588, 593 (CCPA 1977). A description which renders obvious the invention for which the benefit of an earlier date is sought is not sufficient. *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997).

This reasoning is applicable here. Whether Appellants' proffered provisional application support "implies" and thus renders obvious the later claimed "global" limitations is not relevant to the inquiry before us. Moreover, Appellants have not provided any meaningful analysis explaining how the pertinent portions of the provisional application meet the written description and enablement requirements under 35 U.S.C. §112, first paragraph with respect to Appellants' claim for domestic priority under 35 U.S.C. § 119(e). Therefore, we find Appellants have not sustained their burden on appeal in providing arguments or evidence persuasive of error in

the Examiner's findings. We find Appellants have not conveyed with reasonable clarity to those skilled in the art that, as of the provisional application filing date sought, they were in possession of the invention.

§ 112, first paragraph, enablement

Because we have determined that the later claimed "global" limitations are not supported in the written description of provisional application Serial No. 60/422,117, we are also of the view that one skilled in the art, after reading the instant provisional specification, would not have been able to practice the claimed utility application invention without undue experimentation.

35 U.S.C. § 103(a) rejection

Claims 83-106

APPELLANTS' CONTENTIONS

Appellants contend that "[t]he urge and impetus to make the Ahanin AAPA, Wang and Lattice combination is dictated by hindsight rather than [un]patentable obviousness." (App. Br. 12). In particular, Appellants contend that the Examiner's reliance on the Lattice reference for its teaching of global set/reset features impermissibly relies on Appellant's teaching as a guide, because the global set/reset of Lattice operates differently than Appellants' global set/reset. (App. Br. 14).

EXAMINER'S RESPONSE

In response, the Examiner notes that Appellants have “failed to discuss any fault in the [E]xaminer’s rationale to combine the references.” (Ans. 9).

ISSUE

1. Have Appellants shown that the Examiner erred in combining the Ahanin, AAPA, Wang, and Lattice references under 35 U.S.C. § 103 by relying on impermissible hindsight?

PRINCIPLES OF LAW

“What matters is the objective reach of the claim. If the claim extends to what is obvious, it is invalid under § 103.” *KSR Int’l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1742 (2007). To be nonobvious, an improvement must be “more than the predictable use of prior art elements according to their established functions.” *Id.* at 1740.

FINDINGS OF FACT

In our analysis *infra*, we rely on the following findings of fact (FF) that is supported by a preponderance of the evidence:

THE LATTICE REFERENCE

1. Lattice teaches the use of a global set/reset control signal (page 36, Table 16).

ANALYSIS

35 U.S.C. § 103 rejections

ISSUE

Combinability of the cited references

We decide the question of whether Appellants have shown that the Examiner erred in combining the Ahanin, AAPA, Wang, and Lattice references under 35 U.S.C. § 103 by relying on impermissible hindsight.

We begin our analysis by noting that Appellants ground their hindsight allegation on the premise that the global set/reset feature of Lattice operates differently than Appellants' global set/reset feature. (App. Br. 14). However, we find Appellants have failed to provide any meaningful explanation or analysis that explains how Lattice's global set/reset feature operates differently than Appellants' claimed feature. (See App. Br. 14-15). While Appellants attempt to distinguish their invention over Ahanin and AAPA (App. Br. 12-13), Appellants do not provide any analysis to distinguish Appellants' global set/reset over Lattice's teaching of a global set/reset control signal (FF 1).

Moreover, while we recognize that hindsight bias that often plagues determinations of obviousness, *Graham v. John Deere Co.*, 383 U.S. 1, 36 (1966), we are also mindful that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results," *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1739 (2007).

We find this reasoning applicable here. In addition, we note that Appellants have not rebutted the Examiner's legal conclusion of obviousness by showing that the claimed combination of familiar elements produces any new function. Appellants have not provided any factual evidence of secondary considerations, such as unexpected or unpredictable results, commercial success, or long felt but unmet need.

For at least the aforementioned reasons, we find Appellants' arguments unpersuasive that the cited references have been improperly combined by the Examiner.

CONCLUSION

Based on the findings of facts and analysis above, Appellants have not established that the Examiner erred in combining the Ahanin, AAPA, Wang, and Lattice references under 35 U.S.C. § 103(a) .

Based on the findings of facts and analysis above, Appellants have not established that the Examiner erred in finding that all claims on appeal fail to comply with the written description and enablement requirements of 35 U.S.C. § 112 with respect to provisional application No. 60/422,117, from which Appellants base their claim to domestic priority under 35 U.S.C. § 119(e).

DECISION

We affirm the Examiner's rejections of claims 83-106.

Appeal 2008-3826
Application 10/691,966

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

pgc

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